UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/698,550	10/27/2000	Shervin Moloudi	40884/CAG/B600	5013

7590 03/25/2005

CHRISTOPHER C. WINSLADE
MCANDREWS, HELD & MALLOY
500 W. MADISON STREET
SUITE 3400
CHICAGO, IL 60661

EXAMINER	
MILORD, MARCEAU	
ART UNIT	**PAPER NUMBER**
2682	

DATE MAILED: 03/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/698,550	Applicant(s) MOLOUDI ET AL.	
	Examiner Marceau Milord	Art Unit 2682	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 November 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-93* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *33-38 and 70-75* is/are allowed.

6)☒ Claim(s) *1-32,39-69 and 76-93* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-32, 39-69, 76-93 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mole et al (US Patent No 6226509 B1) and Molnar et al (US Patent No 6587678 B1).

Regarding claims 1, 5, 23-24, Mole et al discloses a mixer (figs. 3-4), comprising: a track and hold circuit to track and hold a first signal which is the first mixer (46 of fig. 3) which is also the first mixer in response to a second signal (col. 4, lines 1-52; col. 7, lines 12-63).

However, Mole et al does not specifically disclose the feature of a bandpass circuit in cooperation with the track and hold circuit.

On the other hand, Molnar, from the same field of endeavor, discloses a direct conversion receiver for receiving a first input signal and directly down converting it to baseband frequencies (col. 3, lines 26-67). The mixer has a mixer core, represented by switches 92 and 93, each of which is configured to toggle back and forth in positions 1 and 2 (col. 9, lines 20-67; col. 10,

lines 32-64; col. 11, lines 1-40). Furthermore, Molnar shows in figure 13, a mixer that is configured to operate from a differential voltage mode RF input. The mixer core comprises switches 82, 83, 84, and 85. Each switch also comprises two cross-coupled NPN bipolar transistors (col. 12, lines 6-58; col. 14, lines 15-56; col. 16, line 35- col. 17, line 67). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the technique of Molnar to the system of Mole in order to improve noise performance and achieve a higher conversion gain.

Regarding claim 2, Mole et al as modified discloses a mixer (figs. 3-4) further comprising an input circuit to buffer the first signal before being applied to the track and hold circuit (col. 7, lines 12-63).

Regarding claim 3, Mole et al as modified discloses a mixer (figs. 3-4), wherein the track and hold circuit comprises first and second output signals, the mixer further comprising a buffer to combine the first and second output signals (col. 7, lines 51- col. 8, line 10).

Regarding claim 4, Mole et al as modified discloses a mixer (figs. 3-4), wherein the bandpass circuit comprises an inductor and capacitor each being coupled to the track and hold circuit, the inductor and capacitor cooperating to provide a time constant related to a frequency of the first signal (col. 12, lines 12-53; col. 13,lines 1-26).

Regarding claim 6, Mole et al as modified discloses a mixer (figs. 3-4), wherein the switch comprises a transistor having a gate coupled to the second signal (col. 9, lines 12-59).

Regarding claim 7, Mole et al as modified discloses a mixer (figs. 3-4), comprises a source coupled to the first signal (col. 7, lines 51- col. 8, line 10).

Regarding claim 8, Mole et al discloses a mixer (figs. 3-4), wherein the transistor further comprises a drain, and the bandpass circuit comprises a capacitor coupled to the drain (col. 9, lines 1-59)

Regarding claim 9, Mole et al as modified discloses a mixer (figs. 3-4), wherein the bandpass circuit comprises a capacitor coupled to the drain (col. 9, lines 1-59).

Regarding claim 10, Mole et al as modified discloses a mixer (figs. 3-4); wherein the bandpass circuit further comprises an inductor coupled to the source of the transistor (col. 9, lines 1-59).

Regarding claim 11, Mole et al as modified discloses a mixer (figs. 3-4), wherein the capacitor and inductor cooperate to provide a time constant related to a frequency of the first signal (col. 12, lines 12-53; col. 13,lines 1-26).

Regarding claim 12, Mole et al as modified discloses a mixer (figs. 3-4); wherein the bandpass circuit further comprises an inductor coupled to the source of the transistor (col. 9, lines 1-59).

Regarding claim 13, Mole et al as modified discloses a mixer (figs. 3-4), (fig. 5 and fig. 19) wherein the transistor further comprises a drain, and the bandpass circuit comprises a capacitor coupled to the drain (col. 12, lines 5-col. 13, line 16).

Regarding claim 14, Mole et al as modified discloses a mixer (figs. 3-4), wherein the capacitor and inductor cooperate to provide a time constant related to a frequency of the first signal (col. 12, lines 12-53; col. 13,lines 1-26).

Regarding claim 25, Mole et al as modified discloses a mixer (figs. 3-4), wherein the second transistor further comprises a drain coupled to the output of the transistor (col. 12, lines 5-col. 13, line 16).

Regarding claim 26, Mole et al as modified discloses a mixer (figs. 3-4), wherein the bandpass circuit comprises a capacitor coupled to the output of the transistor (col. 9, lines 5-59).

Regarding claim 27, Mole et al as modified discloses a mixer (figs. 3-4), wherein the second transistor further comprises a source, and the bandpass circuit further comprises an inductor coupled to the source of the second transistor (col. 9, lines 1-59).

Regarding claim 28, Mole et al as modified discloses a mixer (figs. 3-4), wherein the capacitor and inductor cooperate to provide a time constant related to a frequency of the first signal (col. 12, lines 12-53; col. 13,lines 1-26).

Regarding claim 29, Mole et al as modified discloses a mixer (figs. 3-4), wherein the second transistor further comprises a source, and the bandpass circuit further comprises an inductor coupled to the source of the second transistor (col. 9, lines 1-59).

Regarding claim 30, Mole et al as modified discloses a mixer (figs. 3-4), wherein the bandpass circuit comprises a capacitor coupled to the output of the transistor (col. 9, lines 1-59)

Regarding claim 31, Mole et al as modified discloses a mixer (figs. 3-4), wherein the capacitor and inductor cooperate to provide a time constant related to a frequency of the first signal (col. 12, lines 12-53; col. 13,lines 1-26).

Regarding claim 32, Mole et al as modified discloses a mixer (figs. 3-4), wherein the track and hold circuit and the bandpass circuit each comprises a differential circuit, the first and second signals each being differential signals (col. 7, line 12- col. 8, line 54)

Regarding claims 39 and 43, Mole et al discloses a mixer (figs. 3-4) comprising: a track and hold circuit having a signal input, a control input, and a mixed signal output (col. 4, lines 1-52; col. 7, lines 12-63).

However, Mole et al does not specifically disclose the feature of bandpass circuit coupled to the signal input and the mixed signal output.

On the other hand, Molnar, from the same field of endeavor, discloses a direct conversion receiver for receiving a first input signal and directly down converting it to baseband frequencies (col. 3, lines 26-67). The mixer has a mixer core, represented by switches 92 and 93, each of which is configured to toggle back and forth in positions 1 and 2 (col. 9, lines 20-67; col. 10, lines 32-64; col. 11, lines 1-40). Furthermore, Molnar shows in figure 13, a mixer that is configured to operate from a differential voltage mode RF input. The mixer core comprises switches 82, 83, 84, and 85. Each switch also comprises two cross-coupled NPN bipolar transistors (col. 12, lines 6-58; col. 14, lines 15-56; col. 16, line 35- col. 17, line 67). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the technique of Molnar to the system of Mole in order to improve noise performance and achieve a higher conversion gain.

Regarding claim 40, Mole et al discloses a mixer (figs. 3-4) further comprising an input circuit coupled to the signal input (col. 12, lines 5-57).

Regarding claim 41, Mole et al as modified discloses a mixer (figs. 3-4) wherein the mixed signal output comprises first and second output signals, the mixer further comprising a buffer to combine the first and second output signals (col. 7, lines 12-63).

Regarding claim 42, Mole et al as modified discloses a mixer (figs. 3-4) wherein the bandpass circuit comprises an inductor coupled to the signal input and a capacitor coupled to the mixed signal output (col. 9, lines 1-59)

Regarding claim 44, Mole et al as modified discloses a mixer (figs. 3-4) wherein the switch comprises a transistor having a gate coupled to the control input (col. 9, lines 12-59).

Regarding claim 45, Mole et al as modified discloses a mixer (figs. 3-4) wherein the transistor further comprises a source coupled to the signal input (col. 12, lines 1-49).

Regarding claim 46, Mole et al as modified discloses a mixer (figs. 3-4) wherein the transistor further comprises a drain, and the bandpass circuit comprises a capacitor coupled to the drain (col. 9, lines 1-59).

Regarding claim 47, Mole et al as modified discloses a mixer (figs. 3-4) wherein the bandpass circuit further comprises an inductor coupled to the signal input (col. 12, lines 1-49).

Regarding claim 48, Mole et al as modified discloses a mixer (figs. 3-4) wherein the capacitor and inductor cooperate to provide a time constant related to a signal frequency applied to the signal input (col. 12, lines 5-col. 13, line 16).

Regarding claim 49, Mole et al as modified discloses a mixer (figs. 3-4) wherein the bandpass circuit further comprises an inductor coupled to the signal input (col. 9, lines 1-59).

Regarding claim 50, Mole et al as modified discloses a mixer (figs. 3-4) wherein the transistor further comprises a drain, and the bandpass circuit comprises a capacitor coupled to the drain (col. 9, lines 1-59).

Regarding claim 51, Mole et al as modified discloses a mixer (figs. 3-4) wherein the capacitor and inductor cooperate to provide a time constant related to a signal frequency applied to the signal input (col. 12, lines 5-col. 13, line 16).

Regarding claim 52, Mole et al as modified discloses a mixer (figs. 3-4) wherein the track and hold circuit comprises a transistor having an input coupled to the signal input and an output coupled to the mixed signal output, and a current source coupled to the mixed signal output, the current source being controlled by the control input (col. 12, lines 5-col. 13, line 16).

Regarding claim 53, Mole et al as modified discloses a mixer (figs. 3-4) wherein the current source comprises a second transistor having a gate coupled to the control input (col. 12, lines 5-col. 13, line 16).

Regarding claim 54, Mole et al as modified discloses a mixer (figs. 3-4) wherein the second transistor further comprises a drain coupled to the mixed signal output (col. 12, lines 5-col. 13, line 16).

Regarding claim 55, Mole et al as modified discloses a mixer (figs. 3-4) wherein the bandpass circuit comprises a capacitor coupled to the mixed signal output (col. 9, lines 1-59).

Regarding claim 56, Mole et al as modified discloses a mixer (figs. 3-4) wherein the second transistor further comprises a source, and the bandpass circuit further comprises an inductor coupled to the drain of the second transistor (col. 12, lines 5-col. 13, line 16).

Regarding claim 57, Mole et al as modified discloses a mixer (figs. 3-4) wherein the capacitor and inductor cooperate to provide a time constant related to a signal frequency applied to the signal input (col. 12, lines 12-53; col. 13,lines 1-26).

Regarding claim 58, Mole et al as modified discloses a mixer (figs. 3-4) wherein the second transistor further comprises a source, and the bandpass circuit further comprises an inductor coupled to the source of the second transistor (col. 12, lines 5-col. 13, line 16).

Regarding claim 59, Mole et al as modified discloses a mixer (figs. 3-4) wherein the bandpass circuit comprises a capacitor coupled to the mixed signal output (col. 9, lines 1-59).

Regarding claim 60, Mole et al discloses a mixer (figs. 3-4) wherein the capacitor and inductor cooperate to provide a time constant related to a signal frequency applied to the signal input (col. 12, lines 12-53; col. 13,lines 1-26).

Regarding claim 61, Mole et al as modified discloses a differential mixer (figs. 3-4): a track and hold circuit having a differential signal input, a differential control input, and a differential mixed signal output (col. 4, lines 1-52; col. 7, lines 12-63).

However, Mole et al does not specifically disclose the feature of a bandpass circuit coupled to the differential signal input and the differential mixed signal output.

On the other hand, Molnar, from the same field of endeavor, discloses a direct conversion receiver for receiving a first input signal and directly down converting it to baseband frequencies (col. 3, lines 26-67). The mixer has a mixer core, represented by switches 92 and 93, each of which is configured to toggle back and forth in positions 1 and 2 (col. 9, lines 20-67; col. 10, lines 32-64; col. 11, lines 1-40). Furthermore, Molnar shows in figure 13, a mixer that is configured to operate from a differential voltage mode RF input. The mixer core comprises switches 82, 83, 84, and 85. Each switch also comprises two cross-coupled NPN bipolar transistors (col. 12, lines 6-58; col. 14, lines 15-56; col. 16, line 35- col. 17, line 67). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to

apply the technique of Molnar to the system of Mole in order to improve noise performance and achieve a higher conversion gain.

Regarding claims 76, 80, 87-88, Mole et al discloses a mixer (figs. 3-4), comprising: track and hold means for tracking and holding a first signal in response to a second signal; the first signal being within the frequency band (col. 4, lines 1-52; col. 7, lines 12-63).

However, Mole et al does not specifically disclose the feature of a limiting means for limiting the response of the track and hold means to a frequency band.

On the other hand, Molnar, from the same field of endeavor, discloses a direct conversion receiver for receiving a first input signal and directly down converting it to baseband frequencies (col. 3, lines 26-67). The mixer has a mixer core, represented by switches 92 and 93, each of which is configured to toggle back and forth in positions 1 and 2 (col. 9, lines 20-67; col. 10, lines 32-64; col. 11, lines 1-40). Furthermore, Molnar shows in figure 13, a mixer that is configured to operate from a differential voltage mode RF input. The mixer core comprises switches 82, 83, 84, and 85. Each switch also comprises two cross-coupled NPN bipolar transistors (col. 12, lines 6-58; col. 14, lines 15-56; col. 16, line 35- col. 17, line 67). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the technique of Molnar to the system of Mole in order to improve noise performance and achieve a higher conversion gain.

Regarding claim 77, Mole et al as modified discloses a mixer (figs. 3-4), further comprising means for buffering first signal before being applied to the track and hold (col. 7, lines 12-63).

Regarding claim 78, Mole et al as modified discloses a mixer (figs. 3-4), wherein the track and hold means comprises first and second output signals, the mixer further comprising means for combining the first and second output signals (col. 7, lines 51- col. 8, line 10).

Regarding claim 79, Mole et al as modified discloses a mixer (figs. 3-4), wherein the limiting means comprises an inductor and capacitor each being coupled to the track and hold means (col. 12, lines 5-col. 13, line 16).

Regarding claim 81, Mole et al as modified discloses a mixer (figs. 3-4), wherein the switch comprises a transistor having a gate coupled to the second signal (col. 9, lines 12-59).

Regarding claim 82, Mole et al as modified discloses a mixer (figs. 3-4); wherein the transistor filter comprises a source coupled to the first signal (col. 9, lines 12-59).

Regarding claim 83, Mole et al as modified discloses a mixer (figs. 3-4), wherein the transistor further comprises a drain, and the limiting means comprises a capacitor coupled to the drain (col. 12, lines 5-col. 13, line 16).

Regarding claim 84, Mole et al as modified discloses a mixer (figs. 3-4), wherein the limiting means further comprises an inductor coupled to the source of the transistor (col. 12, lines 5-col. 13, line 16).

Regarding claim 85, Mole et al as modified discloses a mixer (figs. 3-4) wherein the bandpass circuit further comprises an inductor coupled to the source of the transistor (col. 12, lines 5-col. 13, line 16).

Regarding claim 86, Mole et al as modified discloses a mixer (figs. 3-4), wherein the transistor further comprises a drain, and the bandpass circuit comprises a capacitor coupled to the drain (col. 12, lines 5-col. 13, line 16).

Regarding claim 89, et al as modified discloses a mixer (figs. 3-4), wherein the second transistor further comprises a drain coupled to the output of the transistor (col. 12, lines 5-col. 13, line 16).

Regarding claim 90, Mole et al discloses a mixer (figs. 3-4), wherein the limiting means comprises a capacitor coupled to the output of the transistor (col. 12, lines 5-col. 13, line 16).

Regarding claim 91, Mole et al as modified discloses a mixer (figs. 3-4), wherein the second transistor further comprises a source, and the limiting means further comprises an inductor coupled to the source of the second transistor (col. 12, lines 5-col. 13, line 16).

Regarding claim 92, Mole et al as modified discloses a mixer (figs. 3-4), wherein the second transistor further comprises a source, and the limiting means further comprises an inductor coupled to the source of the second transistor (col. 12, lines 5-col. 13, line 16).

Regarding claim 93, Mole et al as modified discloses a mixer (figs. 3-4), wherein the limiting means comprises a capacitor coupled to the output of the transistor (col. 9, lines 1-59).

Regarding claims 15-22, Mole discloses a mixer (figs. 3-4), comprising: a track and hold circuit to track and hold a first signal (col. 4, lines 1-52; col. 7, lines 12-63).

However, Mole et al does not specifically disclose the feature of a second switch in a second path of the first one of the first differential signals, the first switch being controlled by a first one of the second differential signals and the second switch being controlled by a second one of the second differential signals; a third switch in a first path of a second one of the first differential signals and a fourth switch in a fourth path of the second one of the first differential signals, the third switch being controlled by the first one of the second differential signals and the fourth switch being controlled by a second one of the second differential signals.

On the other hand, Molnar, from the same field of endeavor, discloses a direct conversion receiver for receiving a first input signal and directly down converting it to baseband frequencies. The mixer has a mixer core, represented by switches 92 and 93, each of which is configured to toggle back and forth in positions 1 and 2 (col. 9, lines 20-67; col. 10, lines 32-64; col. 11, lines 1-40). Furthermore, Molnar shows in figure 13, a mixer that is configured to operate from a differential voltage mode RF input. The mixer core comprises switches 82, 83, 84, and 85. Each switch also comprises two cross-coupled NPN bipolar transistors (col. 12, lines 6-58; col. 14, lines 15-56; col. 16, line 35- col. 17, line 67). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the technique of Molnar to the system of Mole in order to improve noise performance and achieve a higher conversion gain.

Regarding claims 62-69, Mole et al discloses a differential mixer (figs. 3-4), comprising: a track and hold circuit having a differential signal input, a differential control input, and a differential mixed signal output (col. 4, lines 1-52; col. 7, lines 12-63).

However, Mole et al does not specifically disclose the feature of a second switch between the first one of the differential inputs and the first one of the differential mixed signal outputs, the first switch being controlled by a first one of the differential control inputs and the second switch being controlled by a second one of the differential control inputs; a third switch between a second one of the differential inputs and a second one of the differential mixed signal outputs, and a fourth switch between the second one of the differential inputs and the second one of the differential mixed signal outputs, the third switch being controlled by a first one of the

differential control inputs and the fourth switch being controlled by a second one of the differential control inputs.

On the other hand, Molnar, from the same field of endeavor, discloses a direct conversion receiver for receiving a first input signal and directly down converting it to baseband frequencies. The mixer has a mixer core, represented by switches 92 and 93, each of which is configured to toggle back and forth in positions 1 and 2 (col. 9, lines 20-67; col. 10, lines 32-64; col. 11, lines 1-40). Furthermore, Molnar shows in figure 13, a mixer that is configured to operate from a differential voltage mode RF input. The mixer core comprises switches 82, 83, 84, and 85. Each switch also comprises two cross-coupled NPN bipolar transistors (col. 12, lines 6-58; col. 14, lines 15-56; col. 16, line 35- col. 17, line 67). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the technique of Molnar to the system of Mole in order to improve noise performance and achieve a higher conversion gain.

Allowable Subject Matter

2. Claims 33-38, 70-75 are allowed.

Response to Arguments

3. Applicant's arguments filed on November 9, 2004 have been fully considered but they are not persuasive.

Applicant's representative argues that Mole fails to teach the features of a "track and hold circuit".

However, Molnar shows a core mixer that comprises switches 62a-62d coupled between input stage 66, and output stage 23. The switches are controlled by the signals. The preprocessor forms the signals a, b, c, d, and d responsive to the phase-split signals A1, B1, A2, and B2 (figs.10 A-11E; col. 15, lines 1-45).

In response to applicant's argument that that "Molnar directly and specifically teaches away from IF down conversion as taught by Mole", it is noted that the features upon which applicant relies (direct down conversion and IF conversion) are not recited in the claims. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See In re Van Geuns, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir 1993).

In response to applicant' s argument that there is no suggestion to combine the references, the Examiner recognizes that references cannot be arbitrarily combined and that there must be some reason why one skilled in the art would be motivated to make the proposed combination of primary and secondary references. In re Nomiya, 184 USPQ 607 (CCPA 1975). However, there is no requirement that a motivation to make the modification be expressly articulated. The test for combining references is what the combination of disclosures taken as a whole would suggest to one of ordinary skill in the art. In re McLaughlin, 170 USPQ 209 (CCPA 1971). References are evaluated by what they suggest to one versed in the art, rather that by their specific disclosure. In re Bozec, 163 USPQ 545 (CCPA) 1969. In this case, it would have been obvious for a person having ordinary skill in the pertinent art, at the time the invention was made, to apply the technique of Molnar to the system of Mole in order to improve noise performance and achieve a higher conversion gain.

Conclusion

4. THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marceau Milord whose telephone number is 703-306-3023. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian C. Chin can be reached on 703-308-6739. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MARCEAU MILORD

M Milord
MARCEAU MILORD
PRIMARY EXAMINER

Marceau Milord

Examiner

Art Unit 2682

3-15-05